2. (Amended) A nucleic acid molecule comprising a nucleotide sequence encoding a Green Fluorescent Protein (GFP) polypeptide that has the amino acid sequence of SEQ ID N0:22 with the exception that an amino acid residue selected from the group consisting of Leu, Ile, Val, Gly and Ala is substituted for the Phe residue at position 64 of SEQ ID N0:22.

14. (Twice Amended) A nucleic acid molecule comprising a nucleotide sequence encoding a protein of interest fused to a nucleotide sequence encoding a Green Fluorescent Protein (GFP) according to claim 1.

18. (Amended) A nucleic acid molecule comprising a nucleotide sequence encoding a Green Fluorescent Protein (GFP) having an amino acid sequence in which the amino acid Phe immediately upstream of the chromophore is substituted with at least an amino acid selected from the group consisting of Leu, Ile, Val, Gly, and Ala, wherein said chromophore has an amino acid sequence selected from the group consisting of SerTyrGly, SerHisGly, ThrHisGly and ThrTyrGly, and wherein said substituted GFP exhibits increased fluorescence at the same wavelength at a temperature of 30°C or above, relative to a GFP lacking the above substitution, when expressed in a host cell.

23. (Twice Amended) A nucleic acid molecule comprising a nucleotide sequence encoding a protein of interest fused to a nucleotide sequence encoding a Green Fluorescent Protein (GFP) according to claim 18.

28. (Amended) The nucleic acid molecule according to claim 2, wherein a Leu residue is substituted for the Phe residue at position 64 of SEQ ID NO: 22, and wherein a His residue is substituted for the Tyr residue at position 66 of SEQ ID NO: 22.

29. (Amended) The nucleic acid molecule according to claim 2, wherein a Ile residue is substituted for the Phe residue at position 64 of SEQ ID NO: 22, and wherein a His residue is substituted for the Tyr residue at position 66 of SEQ ID NO: 22.

30. (Amended) The nucleic acid molecule according to claim 2, wherein a Ala residue is substituted for the Phe residue at position 64 of SEQ ID NO: 22, and wherein a His residue is substituted for the Tyr residue at position 66 of SEQ ID NO: 22.

31. (Amended) The nucleic acid molecule according to claim 2, wherein a Val residue is substituted for the Phe residue at

position 64 of SEQ ID NO: 22, and wherein a His residue is substituted for the Tyr residue at position 66 of SEQ ID NO: 22.

32. (Amended) The nucleic acid molecule according to claim 2, wherein a Gly residue is substituted for the Phe residue at position 64 of SEQ ID NO: 22, and wherein a His residue is substituted for the Tyr residue at position 66 of SEQ ID NO: 22.

Please add the following new claims:

--35. (New) A nucleic acid molecule comprising a nucleotide sequence encoding a fluorescent protein derived from Green Fluorescent Protein (GFP), said fluorescent protein having an amino acid sequence in which the amino acid Phe immediately upstream of the chromophore is substituted with and amino acid selected from the group consisting of Leu, Ile, Val, Gly, and Ala, wherein said chromophore has an amino acid sequence selected from the group consisting of SerTyrGly, SerHisGly, ThrHisGly and ThrTyrGly, and wherein said fluorescent protein exhibits increased fluorescence at the same wavelength at a temperature of 30°C or above, relative to the fluorescent protein lacking the above substitution, when expressed in a host cell.--

--36. (New) The nucleic acid molecule according to claim 35, wherein said GFP is *Aequoria victorea* GFP or *Renilla reniformis* GFP.--

--37. (New) The nucleic acid molecule according to claim 35, wherein said GFP is wild-type GFP.--

--38. (New) The nucleic acid molecule according to claim 18, wherein a Leu residue is substituted for the Phe residue.--

--39. (New) The nucleic acid molecule according to claim 18, wherein a Ile residue is substituted for the Phe residue.

--40. (New) The nucleic acid molecule according to claim 18, wherein a Ala residue is substituted for the Phe residue.--

--41. (New) The nucleic acid molecule according to claim 18, wherein a Val residue is substituted for the Phe residue.--

--42. (New) The nucleic acid molecule according to claim 18, wherein a Gly residue is substituted for the Phe residue.--

--43. (NEW) The nucleic acid molecule according to claim 18, wherein said substituted GFP exhibits increased fluorescence at the same wavelength at a temperature of from 32°C to 39°C.--

--44. (NEW) The nucleic acid molecule according to claim 18, wherein said substituted GFP exhibits increased fluorescence at the same wavelength at a temperature of from 35°C to 38°C.--

--45. (NEW) The nucleic acid molecule according to claim 18, wherein said substituted GFP exhibits increased fluorescence at the same wavelength at a temperature of about 37°C.--

--46. (NEW) The nucleic acid molecule according to claim 18, wherein said GFP is derived from *Aequoria victorea* or *Renilla reniformis*.--

--47. (NEW) A nucleic acid molecule comprising a nucleotide sequence encoding a protein of interest fused to a nucleotide sequence according to claim 35.--